

## PLANT PHYSIOLOGY

# One-Celled Green Plants Absorb CO<sub>2</sub> in the Dark

## Accepted "Rules" of Photosynthesis in Plants Need Revision on Basis of This and Other New Experiments

ONE-CELLED green water plants have been proved to absorb carbon dioxide in the dark, in experiments reported, (*Science*, June 1) by Dr. H. Gaffron of the University of Chicago. This is contrary to the accepted "rules" of food formation or photosynthesis in plants, which calls for the use of light energy by the plants when carbon dioxide is absorbed.

This unorthodox behavior on the part of these lower plants takes place only in a special, artificial atmosphere containing hydrogen and oxygen. Some time ago, Dr. Gaffron reported the ability of the same plants to combine oxygen and hydrogen, presumably with the release of energy for their own use, in dim light. Now he has found that if a little carbon dioxide is added to the artificial atmosphere the process can go on in the dark, and that part of the carbon dioxide is absorbed by the plant as well.

"This means," comments Dr. Gaffron,

"that all three types of carbon dioxide assimilation observed in living organisms, chemical reduction in the dark, photochemical reduction with hydrogen donors in the light and photosynthesis as specified by the liberation of oxygen, may occur in the same plant cell."

Another case of "unorthodox" use of carbon dioxide in the dark was recently reported at the Eighth American Scientific Congress in Washington, by Prof. S. O. Mast of the Johns Hopkins University. (See *SNL*, May 25) In Prof. Mast's experiments, a nongreen organism, so low in the evolutionary scale that it is not certain whether it is plant or animal, proved capable of thriving in the dark when supplied only with inorganic nutrient salts and carbon dioxide.

Discoveries of this kind are making necessary some rather marked revisions in physiologists' ideas regarding the processes of food formation and energy liberation by plants.

*Science News Letter, June 8, 1940*

days under the vitamin treatment even though the patients were continuing their daily quart of whisky. From which the physicians concluded that vitamin B<sub>1</sub> acted directly on the kidneys in a curative way.

The fact that recovery from acute symptoms of delirium tremens occurred practically twice as fast when vitamin B<sub>1</sub> was injected into the patients' veins, even in the presence of continuous drinking, indicates, the Providence physicians state, that the cause of the condition is primarily a deficiency of the vitamin in the presence of a deranged sugar-starch chemistry in the body.

Reason for the vitamin deficiency which brings on the pink elephants is the fact that the person who gets delirium tremens has a habit of failing to "stop for adequate dietary foods in his alcoholic meanderings after the first twelve hours."

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## MILITARY SCIENCE

## Research Facilities to Speed National Defense

HIGH-PRESSURE war work will soon displace much peaceful scientific research in American universities and the sooner the preparations are completed the better for this unavoidable, all-important job.

This seemed to be the judgment of the faculty of the California Institute of Technology which has placed its services at the disposal of the government to expedite the program of national defense.

It may be expected that similar measures will be reported from many university laboratories all over the country.

The trustees of the California Institute have approved the council on defense cooperation set up by the faculty to provide the most efficient means of mobilizing and coordinating effort. The council is to proceed immediately with a survey of the possible contributions which the Institute can make both through individual members of the staff and the special facilities in the laboratories. An executive committee of Prof. Richard C. Tolman, Dr. Max Mason and Prof. E. C. Watson were named. All were active in warfare service in 1918.

Many of the staff who are experts in fields of military significance have offered to devote a large portion of their time to the defense work. These are men who in the past have found nothing of sufficient importance to divert them from their own chosen research activities.

*Science News Letter, June 8, 1940*

## MEDICINE

# Alcohol Not Chief Cause Of Delirium Tremens

## Pink Elephants Are Banished Despite Daily Quart of Whisky When Patient Is Given Large Doses of Vitamin B<sub>1</sub>

ALCOHOL is "not the principal factor in the production of delirium tremens," three Providence, R. I., physicians, Dr. Hugh E. Kiene, Dr. Robert J. Streitwieser, and Dr. Himon Miller, seem to have proved. (*Journal, American Medical Association*, June 1)

Vitamin B<sub>1</sub> banished the pink elephants in short order, twice as fast as usual, even though the patients in their experiment continued to drink a quart of whisky daily.

These five patients were seeing every animal in the Barnum and Bailey outfit, according to one of them, when admitted

to the hospital. They recovered, on the average, in 2.4 days on a treatment of large doses of vitamin B<sub>1</sub> plus a drink of four ounces of bonded rye whisky every three hours, day and night.

Another five patients admitted to the hospital in the same pink elephant stage following drinking debauches were given the same nursing care and same diet. But they did not get either the vitamin treatment or the whisky. It took an average of 4.2 days before these patients recovered.

Signs of kidney irritation in two of the patients disappeared within three